

## **EXHIBIT D**

**UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF MISSISSIPPI  
NORTHERN DIVISION**

MISSISSIPPI STATE CONFERENCE OF THE  
NATIONAL ASSOCIATION FOR THE  
ADVANCEMENT OF COLORED PEOPLE; DR.  
ANDREA WESLEY; DR. JOSEPH WESLEY;  
ROBERT EVANS; GARY FREDERICKS; PAMELA  
HAMNER; BARBARA FINN; OTHO BARNES;  
SHIRLINDA ROBERTSON; SANDRA SMITH;  
DEBORAH HULITT; RODESTA TUMBLIN; DR.  
KIA JONES; ANGELA GRAYSON; MARCELEAN  
ARRINGTON; VICTORIA ROBERTSON,

**Case No. 3:22-cv-734-DJP-HSL-LHS-  
FKB**

*Plaintiffs,*

vs.

STATE BOARD OF ELECTION  
COMMISSIONERS; TATE REEVES, *in his official  
capacity as Governor of Mississippi*; LYNN FITCH, *in  
her official capacity as Attorney General of  
Mississippi*; MICHAEL WATSON, *in his official  
capacity as Secretary of State of Mississippi*,

*Defendants,*

AND

MISSISSIPPI REPUBLICAN EXECUTIVE  
COMMITTEE,

*Intervenor-Defendant.*

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**SUPPLEMENTAL EXPERT REPORT OF PETER A. MORRISON, Ph.D.**

December 11, 2023

I am an applied demographer and President of Peter A. Morrison & Associates. I am retired from The RAND Corporation, where I was Senior Demographer and the founding director of RAND's Population Research Center. I have provided testimony in litigation pertaining to the Voting Rights Act and districting plans and have constructed and/or evaluated numerous proposed local redistricting plans. I have made invited presentations on demographic aspects of redistricting to members and/or staff of the U. S. House of Representatives Subcommittee on the Census; the County Counsels' Association of California; League of California Cities; National League of Cities; and at professional meetings of academic demographers (Population Association of America and the Southern Demographic Association).

I have served on the U.S. Census Bureau Advisory Committee on Population Statistics, 1989-1995; and as an invited participant on the Bureau's Working Group on 2010 Race and Ethnicity. I have been elected as President of the Southern Demographic Association and to the Board of Directors of the Population Association of America, which are the two leading associations of professional demographers; and have taught students at the RAND Graduate School. I am being compensated at a rate of \$350/hour for my work in reviewing the materials and preparing this report. I will be compensated at a rate of \$500/hour for any testimony by deposition or at trial.

Attached **Appendix A** lists all cases in which I have testified by declaration, deposition, or at trial in the past four years. Attached **Appendix B** summarizes my academic background, including all publications in the last ten years.

## **I. SUMMARY OF CONCLUSIONS AND OPINIONS**

1. I have been asked to opine on the level of political participation of Black eligible voters in Mississippi relative to that of the state's White eligible voters. "Political participation" here refers to the percentage of eligible voters who were registered to vote and who turned out to vote in a specific election or elections. I have accessed relevant data published by the US Census Bureau and report here what those data show.
2. To form my opinion, I have accessed and reviewed academic research on political participation by Mississippi voters. I also have assembled and analyzed data from U.S. Census Bureau's Current Population Survey (CPS), which publishes biennial data of high scientific quality. These CPS data enable me to compare the self-reported political participation of Black and White Mississippi voters in elections spanning a 42-year period. This CPS time-series of data affords a uniquely informative perspective on the central question I address: *Has the political participation of Black eligible voters changed over time relative to that of White nonHispanic eligible voters in Mississippi?* The CPS data afford me a four-decade historical perspective based upon published data from the US Census Bureau, the nation's recognized source of high-quality data.
3. Over a 42-year period, a distinct break occurred in the historical pattern of political participation by Mississippi voters. From 1980 through 2002, the political participation of Blacks trailed that of Whites, virtually without exception. From 2004 onward, that pattern reversed, such that Black political participation has *exceeded* that of Whites in most years. This break is authentic, irrespective of any apparent overreporting of registration or turnout on the CPS.
4. Based upon the entirety of these data and other research, it is my opinion that the level of Black political participation in terms of voter registration and turnout has exceeded that of Whites in most

years since 2004. This has been the case in every year since 2012 except one year when it was virtually equal.

## II. DETAILED FINDINGS: MISSISSIPPI VOTER REGISTRATION AND TURNOUT

The U.S. Census Bureau's Current Population Survey (CPS) publishes biennial data of high scientific quality with which to compare the political participation of Black and White Mississippi voters. Like many published Census Bureau data products, the CPS is a well-documented sample survey, with known statistical and measurement limitations.<sup>1</sup> Federal agencies rely upon these high-quality data for a broad spectrum of policymaking and resource allocation decisions. For my purposes, the CPS affords me a consistent time-series of self-reported political participation over the 25-year period shown in Table 1:

**Table 1. Political Participation by Race, Mississippi, 1998-2022**

Voter Registration (Citizens 18+)				Voter Turnout (Citizens 18+)			
Year	% White (NH)	% Black (AP)	Black minus White	Year	% White (NH)	% Black (AP)	Black minus White
1998	75.8%	71.3%	-4.5%	1998	41.1%	40.4%	-0.7%
2000	73.1%	73.6%	0.5%	2000	62.4%	58.4%	-4.0%
2002	72.1%	69.4%	-2.7%	2002	44.6%	41.0%	-3.6%
2004	73.9%	76.1%	2.3%	2004	60.2%	66.6%	6.4%
2006	71.0%	72.2%	1.2%	2006	39.9%	50.5%	10.6%
2008	75.0%	81.9%	6.9%	2008	68.4%	73.1%	4.7%
2010	74.2%	73.6%	-0.6%	2010	47.7%	48.1%	0.4%
2012	82.4%	90.8%	8.4%	2012	71.8%	82.7%	10.9%
2014	72.8%	83.2%	10.4%	2014	40.3%	46.6%	6.3%
2016	78.8%	81.3%	2.5%	2016	67.7%	69.2%	1.5%
2018	71.8%	77.9%	6.1%	2018	51.7%	59.8%	8.1%
2020	79.2%	83.4%	4.2%	2020	69.8%	72.9%	3.1%
2022	74.3%	72.2%	-2.1%	2022	47.6%	47.0%	-0.6%

Source: U.S. Census Bureau, Current Population Survey (annual data). Reporting is consistent from 2006 onward.  
Accessed at: Website: <https://www.census.gov/data/tables/time-series/demo/voting-and-registration/p20-585.html>

My specific focus is whether the political participation of Black eligible voters has changed relative to that of White nonHispanic eligible voters in Mississippi. *Political participation* means the rate at which eligible voters (citizens 18 and older) were registered to vote and turned out to vote after 2002. The CPS time-series data in Table 1 and Figure 1 afford a uniquely informative perspective. The data show a conspicuous pattern of change over the most recent 19-year period (2004 through 2022) compared with the preceding five-year period (1998 through 2002). The shaded cells highlight those election years in

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<sup>1</sup> First, each individual percentage in Table 1 is a sample-based measure, accompanied by a margin of error (MOE). Second, studies have documented specific instances where respondents' self-reports appear to have exaggerated actual measured rates of voter registration and/or turnout.

which self-reported registration or turnout was likelier *lower* for Blacks than for Whites.<sup>2</sup> For voter registration, there were four such years (1998, 2002, 2010, and 2022); for voter turnout, there were four such years (1998, 2000, 2002, and 2022). For voter turnout, the overall pattern suggests that Blacks have turned out at rates typically above those of Whites since 2004.

What does this 25-year historical time-series reveal about the comparative political participation of Mississippi's Black and White voters since 2002? First, one must recognize the statistical and measurement limitations that accompany these CPS measures. Each individual percentage in Table 1 is a sample-based measure, with a statistical margin of error (MOE).<sup>3</sup> In general, the smaller the "Black minus White" percentage difference, the less meaningful the difference is statistically, i.e., the greater the likelihood it appears by chance.

Statistically marginal differences (merely "likelier than not") appearing over many successive years can substantiate an authentic *pattern* over time.<sup>4</sup> The multiple individual differences shown in the "Black minus White" columns of Table 1 may be statistically insignificant (as when a coin tossed comes up heads four successive times). However, those yearly differences may disclose a statistically significant historic change across several decades. In short, discerning meaningful patterns is an alternative approach for accommodating specific instances where respondents' self-reports might be shown to have exaggerated measured rates of voter registration and/or turn out.<sup>5</sup>

Mindful of these qualifications, I offer the following observations about the historical record from 1998 through 2022 documented in Table 1, based upon data that are strictly consistent: (1) Black voting-age citizens report having *registered to vote* at a higher rate than their White non-Hispanic counterparts in 8 of the 10 most recent biennial elections (2004 through 2022); and (2) Black registered voters report having *turned out to vote* at higher rates than their White non-Hispanic counterparts in 9 of those 10 most recent elections.

The data in Table 1 strongly suggest an apparent change since 2004 in Black political participation. First, Black eligible voters have registered to vote and turned out to vote at higher rates than White eligible voters have. Second, this pattern differs markedly from the pre-2004 pattern. I do not disregard the possibility of overreporting of registration or turnout by Black voters on the CPS. However, I do question attributing this historical break to a presumed *differential* overreporting on the part of Black voters relative to Whites.

To expand my 25-year historical perspective, I next included all the preceding years for which CPS data are available (1980 through 1996). Table 2 shows this entire time series, offering a 43-year historical

<sup>2</sup> I simply distinguish negative (shaded) values from positive (unshaded) values, irrespective of *how likely* that difference is statistically significant. My focus at this point is discerning overall patterns of positive or negative differences that are statistically "likelier than not" authentic differences (as distinct from purely random).

<sup>3</sup> "Margin of error" (MOE) is used in research to determine the precision of a specific result or a pattern of results in a scientific study. Expressed as +/- percentage points, a MOE tells us the degree to which a sample-based result may differ from the underlying true result, based upon 100% of the population. A smaller margin of error suggests the survey's results are more precise.

<sup>4</sup> As a simple example: 10 flips of a coin will often produce up to 7 heads simply by chance. However, 9 heads in 10 flips of a coin would offer proof with reasonable scientific certainty that the coin is biased.

<sup>5</sup> Like many published Census Bureau data products, the CPS is a well-documented sample survey, with well-understood statistical and measurement limitations. First, each individual percentage in Table 1 is a sample-based measure, accompanied by a margin of error (MOE). Second, studies have documented specific instances where respondents' self-reports appear to have exaggerated actual measured rates of voter registration and/or turn out.

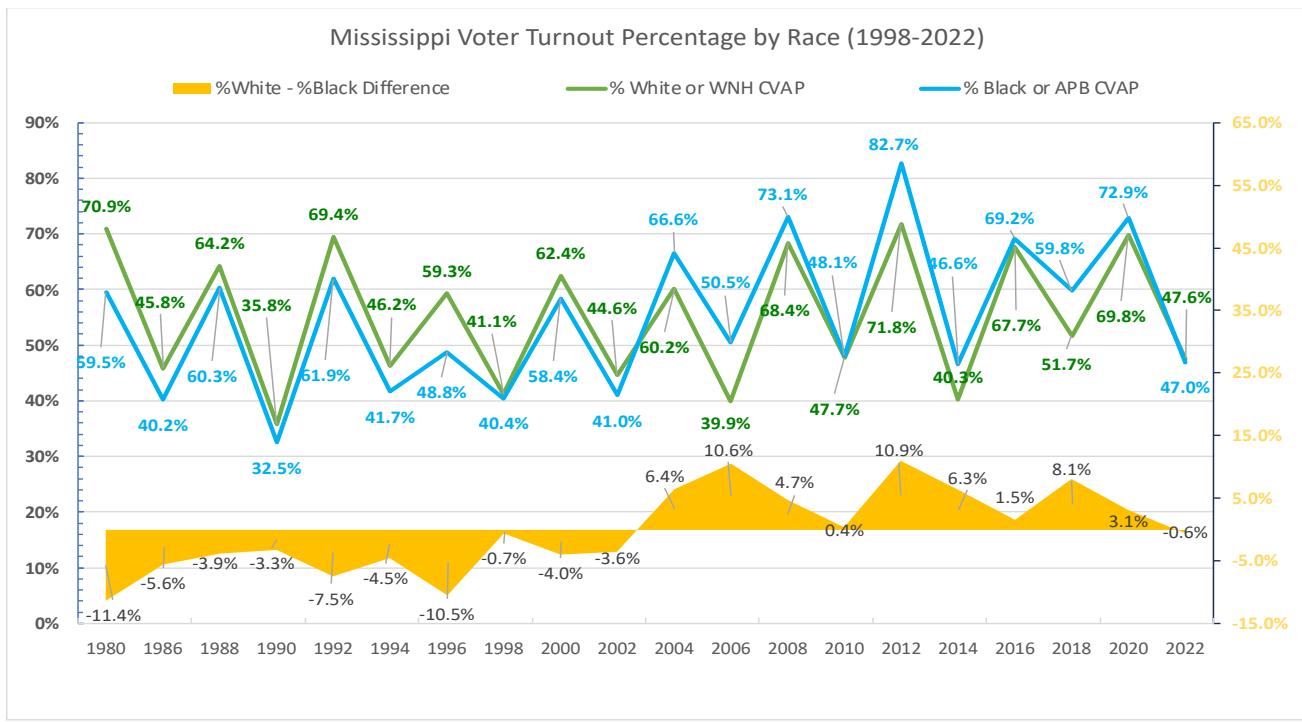
perspective extending beyond what is shown in Table 1. One should note that from 1980 through 1996, the referent population was “persons ages 18+” rather than “citizens ages 18+”. This definitional refinement has virtually no bearing on the appearance or magnitude of a racial difference between Black and White voters in Mississippi.

**Table 2. Political Participation by Race, Mississippi Since 1980**

<b>Voter Registration (Persons 18+)</b>				<b>Voter Turnout (Persons 18+)</b>			
<b>Year</b>	<b>% White (NH)</b>	<b>% Black (AP)</b>	<b>Black minus White</b>	<b>Year</b>	<b>% White (NH)</b>	<b>% Black (AP)</b>	<b>Black minus White</b>
<b>1980</b>	<b>85.2%</b>	<b>72.2%</b>	<b>-13.0%</b>	<b>1980</b>	<b>70.9%</b>	<b>59.5%</b>	<b>-11.4%</b>
<b>1986</b>	<b>77.3%</b>	<b>75.9%</b>	<b>-1.4%</b>	<b>1986</b>	<b>45.8%</b>	<b>40.2%</b>	<b>-5.6%</b>
<b>1988</b>	<b>80.5%</b>	<b>74.2%</b>	<b>-6.3%</b>	<b>1988</b>	<b>64.2%</b>	<b>60.3%</b>	<b>-3.9%</b>
<b>1990</b>	<b>70.8%</b>	<b>71.4%</b>	<b>0.6%</b>	<b>1990</b>	<b>35.8%</b>	<b>32.5%</b>	<b>-3.3%</b>
<b>1992</b>	<b>80.2%</b>	<b>78.5%</b>	<b>-1.7%</b>	<b>1992</b>	<b>69.4%</b>	<b>61.9%</b>	<b>-7.5%</b>
<b>1994</b>	<b>74.6%</b>	<b>46.2%</b>	<b>-28.4%</b>	<b>1994</b>	<b>69.9%</b>	<b>41.7%</b>	<b>-28.2%</b>
<b>1996</b>	<b>75.0%</b>	<b>59.3%</b>	<b>-15.7%</b>	<b>1996</b>	<b>67.4%</b>	<b>48.8%</b>	<b>-18.6%</b>
<b>(Citizens 18+)</b>				<b>(Citizens 18+)</b>			
<b>1998</b>	<b>75.8%</b>	<b>71.3%</b>	<b>-4.5%</b>	<b>1998</b>	<b>41.1%</b>	<b>40.4%</b>	<b>-0.7%</b>
<b>2000</b>	<b>73.1%</b>	<b>73.6%</b>	<b>0.5%</b>	<b>2000</b>	<b>62.4%</b>	<b>58.4%</b>	<b>-4.0%</b>
<b>2002</b>	<b>72.1%</b>	<b>69.4%</b>	<b>-2.7%</b>	<b>2002</b>	<b>44.6%</b>	<b>41.0%</b>	<b>-3.6%</b>
<b>2004</b>	<b>73.9%</b>	<b>76.1%</b>	<b>2.3%</b>	<b>2004</b>	<b>60.2%</b>	<b>66.6%</b>	<b>6.4%</b>
<b>2006</b>	<b>71.0%</b>	<b>72.2%</b>	<b>1.2%</b>	<b>2006</b>	<b>39.9%</b>	<b>50.5%</b>	<b>10.6%</b>
<b>2008</b>	<b>75.0%</b>	<b>81.9%</b>	<b>6.9%</b>	<b>2008</b>	<b>68.4%</b>	<b>73.1%</b>	<b>4.7%</b>
<b>2010</b>	<b>74.2%</b>	<b>73.6%</b>	<b>-0.6%</b>	<b>2010</b>	<b>47.7%</b>	<b>48.1%</b>	<b>0.4%</b>
<b>2012</b>	<b>82.4%</b>	<b>90.8%</b>	<b>8.4%</b>	<b>2012</b>	<b>71.8%</b>	<b>82.7%</b>	<b>10.9%</b>
<b>2014</b>	<b>72.8%</b>	<b>83.2%</b>	<b>10.4%</b>	<b>2014</b>	<b>40.3%</b>	<b>46.6%</b>	<b>6.3%</b>
<b>2016</b>	<b>78.8%</b>	<b>81.3%</b>	<b>2.5%</b>	<b>2016</b>	<b>67.7%</b>	<b>69.2%</b>	<b>1.5%</b>
<b>2018</b>	<b>71.8%</b>	<b>77.9%</b>	<b>6.1%</b>	<b>2018</b>	<b>51.7%</b>	<b>59.8%</b>	<b>8.1%</b>
<b>2020</b>	<b>79.2%</b>	<b>83.4%</b>	<b>4.2%</b>	<b>2020</b>	<b>69.8%</b>	<b>72.9%</b>	<b>3.1%</b>
<b>2022</b>	<b>74.3%</b>	<b>72.2%</b>	<b>-2.1%</b>	<b>2022</b>	<b>47.6%</b>	<b>47.0%</b>	<b>-0.6%</b>

Source: U.S. Census Bureau, Current Population Survey (annual data). Reporting is consistent from 2006 onward. Accessed at: Website: <https://www.census.gov/data-tables/time-series/demo/voting-and-registration/p20-585.html>

The overall historical time series in Table 2 and Figure 1 present a remarkable pattern of change over this 43-year historical period for which CPS data are available:

**Figure 1. Historical Change in Voter Turnout by Race, Mississippi Since 1980**

Source: Table 2 above.

Figure 1 displays a remarkably consistent difference between self-reported registration and turnout by Blacks and Whites from 1980 through 2002 (highlighted by the negative orange values). The opposite pattern emerged thereafter: mostly *positive* orange values, highlighting successive years when Black turnout exceeded that of Whites beginning in 2004.

Two interpretations are possible here. Either a genuine break in the historical pattern of Mississippi Black voters' political participation manifested itself in these data starting around 2004; or alternatively, the apparent break arose through a behavioral change—but only among Black eligible voters. Under this latter fanciful interpretation, Blacks (but not Whites) began overreporting that they were registered to vote and (especially) that they had turned out to vote.

As of this writing, I am unaware of any study offering me the historical depth and continuity of the Census Bureau's 43-year CPS survey, which might challenge my conclusion that a genuine break did occur.

### **III. BASIS FOR CONCLUSIONS AND OPINIONS**

1. The data and research I have relied upon present two alternative possibilities. First, a genuine break may have occurred, as shown in the Current Population Survey's historical record of Mississippi Black voters' political participation since around 2004.<sup>6</sup> Alternatively, the apparent break may be only the byproduct of Black respondents having overreported registering and/or turning out to vote, as various studies suggest.<sup>7</sup> Note that these two possibilities are not mutually exclusive.

<sup>6</sup> See preceding Tables 1 and 2 and Figure 1.

<sup>7</sup> See, for example, Kanazawa, Satoshi, "Who Lies on Surveys, and What Can We Do About It?" *Journal of Social, Political and Economic Studies* 30 (Fall 2005): 361-370; and a series of articles by Abramson and Claggett (1984, 1986, 1989, 1991)

2. A recent comprehensive evaluation based upon the American National Election Studies (ANES)<sup>8</sup> puts these competing interpretations to a test. Its “Summary of Findings” on page 13 casts doubt on the second alternative (overreported registration and/or turnout) [*emphasis added below*]:

“From these analyses, we conclude that the benefits of turnout validation are quite limited *and that factors other than respondent lying are a substantial cause of turnout overestimation*. We base these conclusions on four key findings. Three of these findings pertain to the quality of government records:

First, official government records of registration and turnout behavior contain errors that make it difficult to accomplish accurate turnout validation.

Second, the character and frequency of such errors varied substantially across states. These differences occurred, in part, because states kept and updated registration and turnout records in very different ways.

Third, state-level differences in government records, including differences in types of errors, caused procedures that were apparently successful in matching survey respondents to government records in one state to be very unsuccessful in other states. This finding suggests that one-size-does-not-fit-all when it comes to the best way to match registration and turnout records to respondents across the states.

Fourth, for survey respondents whose government records can be located, there are extraordinarily high rates of agreement between their self-reports and what their government records indicate. Indeed, people who participated in the 2008 ANES Panel Study, and whose self-reports could be matched to government records, genuinely turned out to vote at a higher rate than the general vote-eligible population. *This finding implies that lying contributed less to turnout over-estimation than is commonly thought.* This evidence suggests that surveys yield higher levels of apparent turnout than official vote tallies because people who choose to anticipate in surveys about elections are also more likely to participate in elections themselves.”

3. Support for the latter alternative would call for a long-term detailed study comparable to the ACS, in which each Black respondent’s *reported* turnout was matched with that same respondent’s *actual* turnout at various points in the past. As of this writing, I know of no study with anywhere near the historical depth and continuity of the Census Bureau’s 43-year CPS survey which might challenge my interpretation that the apparent break is genuine.<sup>9</sup>

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in *Journal of Politics* using voter validation data from the National Election Studies (NES), suggesting that Blacks overreport voting at higher rates than do Whites.

<sup>8</sup> M. K. Berent, J. A. Krosnick, and A. Lupia, *The Quality of Government Records and Over-estimation of Registration and Turnout in Surveys: Lessons from the 2008 ANES Panel Study’s Registration and Turnout Validation Exercise*. August 2011. Working Paper no. NES012554. Ann Arbor, MI and Palo Alto, CA: American National Election Studies. Access at: <http://www.electionstudies.org/resources/papers/nes012554.pdf>

<sup>9</sup> Studies purporting to show that Black respondents overreport registering and/or turning out to vote have limitations; most are highly specific and therefore cannot be generalized. The years analyzed by Abramson and Claggett are those for which voter validation was conducted (extending as far back as 1964); validation studies were not carried out after each election. The study by Kanazawa (2005) pools results only for years in which the ANES carried out validation; it relies upon estimated logistic regression models to estimate both registration and turnout.

4. The CPS self-reported data indicate that since 2004, Black eligible voters having turned out to vote at rates that generally *exceed* their White counterparts. Prior to 2004, this was rarely so.
5. Based upon the entirety of what I have reviewed, it is my opinion that a genuine break did occur in the historical pattern of Mississippi Black voters' political participation. In reaching this conclusion, I do not discount the possibility of ongoing overreporting of registration or turnout on the CPS.<sup>10</sup> The break itself, though, cannot be attributed just to the speculative claim of *differential* overreporting Blacks. As Berent et al. observe: "*The apparent success of turnout validation exercises in producing aggregate turnout rates that are closer to reported official turnout rates appears to occur not simply because the exercises weed out liars, but because the unrecognized 'downwards bias' due to errors in government records is stronger than the unrecognized 'upwards bias' in the actual rate of turnout amongst survey participants.*" (p. 15).
6. It is therefore my opinion that Black voter registration and turnout has exceeded that of Whites in most years since 2004, and this represents a significant increase in parity of political participation between Blacks and Whites occurring during the past 43 years in Mississippi. I hold this opinion with reasonable scientific certainty, based upon the Current Population Survey.<sup>11</sup> I reserve the right to amend or supplement my report based on additional facts, materials or testimony that might become available.

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<sup>10</sup> Any method that effectively and accurately matches respondents living in one state to available government records will not necessarily be as accurate in respondents living in another state. As Berent, Krosnick, and Lupia note (at p. 65): "Both the ANES 2008 Panel Study and the CPS data for November 2008 indicated that there are real demographic differences among people living in different states, and these demographic differences may impact the effectiveness of various matching methods."

<sup>11</sup> See Appendix C for tests of statistical significance.

Pursuant to 28 U.S.C. 1976, I declare under penalty or perjury that foregoing is true and correct according to the best of my knowledge, information and beliefs.



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Peter A. Morrison

December 11, 2023

**Appendix A**  
**Cases Testified in Since 2018 by Declaration, Deposition, or at Trial**

**Peter A. Morrison, Ph. D.**

1. EVENWEL v. PERRY, U.S. DISTRICT COURT FOR THE WESTERN DISTRICT OF TEXAS. Declaration on behalf of Plaintiffs seeking to enjoin Texas from conducting further state Senate elections under Plan S172 and asking the court to require the Texas Legislature to reapportion state senatorial voting districts in conformity with the Fourteenth Amendment.
2. EVENWEL et al. v. ABBOTT et al., UNITED STATES SUPREME COURT. “Brief of Demographers Peter A. Morrison, et al. as *Amici Curiae* in Support of Appellants,” in Evenwel et al. v. Abbott et al., U.S. Supreme Court.
3. DR. PANKAJ JAIN, Plaintiff v. COPPELL INDEPENDENT SCHOOL DISTRICT, et al., U.S. District Court, Northern District of Texas, Dallas Division. Declaration on behalf of Defendant.
4. Glatt v. City of Pasco, et al., U.S. District Court, Eastern District of Washington. Declaration on behalf of Defendant.
5. Feldman et al. v. Arizona Secretary of State’s Office et al., U.S. District Court, Arizona District. Declaration on behalf of Defendant.
6. Timothy Dadey et al. v. City of Costa Mesa, Case No. 30-2014-00757962-CU-CR-CJC and Timothy Dadey et al. v. City of Costa Mesa, Case No. 30-2014-00758104, pending in California Superior Court, Orange County. Deposition testimony.
7. Anne Harding et al. v. County of Dallas, Texas et al. U.S. District Court, Northern District of Texas, Dallas Division. C.A. No. 3: 15-CV-00131-D. Deposition and trial testimony on behalf of Plaintiffs.
8. Pico Neighborhood, et al. v. City of Santa Monica, et al. Superior Court of the State of California for the County of Los Angeles, No. BC616804. Deposition and trial testimony on behalf of Defendant.
9. NAACP et al. v. East Ramapo School District. United States District Court for the Southern District of New York. Expert report on behalf of Defendant; testimony at trial.
10. Joseph Thomas et al. v. Phil Bryant et al., Civil Action No. 3: 18cv 441-CWR-FKB in U. S. District Court for Southern District of Mississippi, Northern Division. Deposition and trial testimony on behalf of Defendants. Case appealed and subsequently dismissed.
11. S&R Development Estates, LLC v. Town of Greenburgh et al. in United States District Court, Southern District of New York. Declaration on behalf of Defendant. Case settled.
12. Holloway, et al. v. City of Virginia Beach, et al. Expert report on behalf of Defendant; deposition testimony.
13. Johnson et al v. Ardoin, Middle District of Louisiana, U. S. District Court. Expert report on behalf of Defendant Louisiana Department of Justice.
14. Vaughan v. Lewisville Independent School District et al., United States District Court, Eastern District of Texas, Sherman Division. Expert report on behalf of Defendant; deposition testimony.
15. Suresh Kumar v. Frisco Independent School District et al., United States District Court, Eastern District of Texas. Expert report on behalf of Defendant. Civil Action # 4:19-cv-00284.
16. Benisek v. Lamone, U.S. District Court, Maryland District. Case # 13-cv-3233. Expert Report.
17. Robert Ware v. City of Long Beach, California Superior Court, Los Angeles County. Case # 20STCV44216. Expert Report; deposition testimony.
18. NAACP v. East Ramapo Central School District, U.S. District Court, Southern District of New York, Case # 17-cv-08943-CS. Testified at trial.
19. Christian Ministerial Alliance, et al. v. Asa Hutchinson, et al. U.S. District Court, Eastern District of Arkansas, Central Division. Case # 4:19-cv-00402-JM. Declaration; Expert Report.
20. Thomas et al. v. Bryant et al. (Mississippi). Expert Report; testimony at trial.
21. Bohren v. Grocery Outlet. U.S. District Court, Northern District of California. Case # 4:20-cv-07085-KAW. Declarations.
22. Atkins et al. v. Sarasota County, FL. U.S. District Court, Case # 8:19-cv-03084-WFJ-CPT. Declaration.
23. Dixon v. Lewisville Independent School District et al. Declaration on behalf of Defendant supporting Motion to Strike.

(Updated: October 9, 2023)

## Appendix B

### Academic Background and Publications

#### Peter A. Morrison, Ph. D.

**EMAIL:** [PETERMORRISON@ME.COM](mailto:PETERMORRISON@ME.COM) **VOICE:** (310) 266-9580

#### **EDUCATION**

B.A., Sociology, 1962, Dartmouth College  
 Ph.D., Sociology, 1967, Brown University

#### **PROFESSIONAL EXPERIENCE**

2009-present — President, Peter A. Morrison & Associates, Inc., Nantucket, MA  
 1969-2009 — Senior Staff Demographer and Resident Consultant, The RAND Corporation, Santa Monica, California  
 1979-1990 — Founding Director, Population Research Center, RAND  
 1967-1969 — Assistant Professor, Department of Sociology, and Research Associate, Population Studies Center, University of Pennsylvania, Philadelphia

#### **AREAS OF EXPERTISE**

Dr. Morrison's principal expertise centers on applications of demographic analysis to redistricting; tracking demographic trends; and envisioning consequences of demographic change for public policy and business.

Domestic applications include demographic analysis for electoral redistricting; store site selection; human resource analysis; evaluating employment discrimination and disparate impact claims, minority representation within jury pools, and school desegregation remedies; forecasting school enrollments; and using census and administrative data to monitor local community demographic contexts.

International applications include business concerns with corporate strategic planning, globally emerging middle-class consumer markets, and demographic precursors of expanding consumer markets; comparing and evaluating individual markets; and identifying potential business opportunities spurred by forthcoming demographic change.

Dr. Morrison conducts studies for the private sector and offers executive briefings on these topics through his consulting firm, founded in 1984. Clients have included American Express, American Stores, Corning, Inc., Ford Motor Co., Marriott International, NBC, New Directions for News, Times Mirror, University of California, and CIBC Securities (Canada).

Formerly a faculty member at the University of Pennsylvania, Dr. Morrison has taught periodically at UCLA, the RAND Graduate School, and the Helsinki School of Economics. He also lectures before academic and business audiences and has given invited testimony before subcommittees of the U.S. Senate and House of Representatives.

He has made invited presentations to the National Science Board, the Conference Board, the National League of Cities, the National Conference of State Legislatures, the University of California Management Institute, the American Bar Association, American Society of Newspaper Editors, newsroom seminars for the Casey Journalism Center, County Counsels Association of California, American College of Surgeons, National Association of Homebuilders, Missouri Legislative Forum, World Future Society, and Volunteers of America.

He has served as advisor to the Committee for Economic Development, the Congressional Research Service, and committees of the National Academy of Sciences, U.S. Census Bureau, Department of Agriculture, National Institutes of Health, California Energy Commission, California Governor's Council on Growth Management, Center for California Studies, and United Way.

#### **PROFESSIONAL ORGANIZATIONS/HONORS**

Advisory Board, Penn State University's online MA Program in Applied Demography  
 Invited participant, U.S. Census Bureau Working Group on 2010 Race and Ethnicity  
 Member, L.A. Unified School District Enrollment Analysis Technical Advisory Committee  
 Visiting Lecturer, Helsinki School of Economics and Business Administration, summer 2001  
 U.S. Census Bureau Advisory Committee on Population Statistics, 1989-1995 (Chair, 1990).  
 Population Association of America: Board of Directors, 1978-1980; Public Affairs Committee, 1979-1986; Chair, Nominations Committee, 1981-1982; annual Program Organizing Committee, 1995, 1998; Local Arrangements

Committee, 2000; Committee on Applied Demography, 1995-1999, Chair, 1998; Development Committee, 2006-2012.

Southern Demographic Association: Board of Directors, 1999-present; Vice President, 2001; President, 2003.

International Association of Applied Demographers (officer)

Center for Spatially Integrated Social Science, UC Santa Barbara: Advisory Board, 2000-Research Advisory Board, Committee for Economic Development, 1988-1991.

Regents' Lecturer, UCLA, Spring 1987.

Social Science Research Council's Committee on Survey of Income & Program Participation, 1985-88.

National Advisory Child Health & Human Development Council, NIH, 1984-1987.

Population Research Committee, National Institute of Child Health & Human Development, 1977-79.

Committee on Behavioral and Social Aspects of Energy Consumption and Production, National Academy of Sciences, 1980-1982.

Committee on Urbanization and Population Redistribution, International Union for Scientific Study of Population, Chairman, 1976-1979.

Advisory Subcommittee for Applied Social and Behavioral Sciences, NSF, 1978-1981.

Future of Rural America Advisory Committee, FHA, 1978-1981.

Editorial Advisory Committee, *Urban Studies*, 1985-1995.

Editorial Advisory Board, *Journal of the Australian Population Assoc.*, 1995-1998.

#### RECENT MEDIA APPEARANCES/COVERAGE:

*Interviews:* CNBC; New York Times; Los Angeles Times; USA Today; Time Magazine; Seattle Times; AMA/Marketing News

*Commentary:* New York Times; Wall Street Journal; Washington Post; International Herald Tribune; Pittsburgh Post-Gazette; Los Angeles Times; Atlanta Constitution; Houston Chronicle; San Jose Mercury News; Providence Journal; San Antonio Express-News

*Articles:* "United Nations of Nantucket," *N Magazine* (Winter 2016).

(access at: [www.n-magazine.com/united-nations-nantucket/](http://www.n-magazine.com/united-nations-nantucket/))

#### RECENT PRESENTATIONS:

May 11, 2022: Presentation of recommended redistricting plan to City Council, Mount Vernon, WA

Access at: <https://www.youtube.com/watch?v=wLJ3CvxbmMI> (starts: 36:35 - ends: 58:45)

February 2, 2022: Population Association of America, Applied Demography Conference (virtual):

"**Redistricting 101: A Tutorial for Beginners,**" with Thomas M. Bryan & William A. V. Clark

Access at: <https://www.youtube.com/watch?v=D22le1URCi4>

February 2-4, 2021: Population Association of America, Applied Demography Conference (virtual):

"**New Technical Challenges in Post-2020 Redistricting,**" with T. M. Bryan

"**Tutorial on Local Redistricting,**" with T. M. Bryan

"**Learning to Live With COVID19: Anticipating Local Outbreaks,**" with D. A. Swanson

10/24/2019: Moderator, "*Border Walls: Exclusionary and Ineffective,*" 2019 AAAS annual meetings, DC.

Access at: <https://aaas.confex.com/aaas/2019/meetingapp.cgi/Session/21451>

2019: "**Demographic Constraints on Minority Voting Strength in Local Redistricting Contexts,**"

presented at 2019 Southern Demographic Association meetings, New Orleans (coauthored with Thomas Bryan). *Terrie Award for Meeting's Best Research Presentation.*

10/24/2019: "**Prisoner Populations and Redistricting: Counting vs. Discounting,**" presented at 2019 Southern Demographic Association meetings, New Orleans (coauthored with Thomas Bryan).

01/24/2019: “**Big Data for a Small Island,**” lunch hour talk at Nantucket Saltmarsh Center  
<https://www.youtube.com/watch?v=ZqqJ9STcMwE>

10/13/2016: “**A Demographic Accounting Model for Class Action Litigation,**” presented at 2016 Southern Demographic Association meetings, Athens, GA (coauthored with Thomas Bryan).

10/22/2015: At Nantucket Historical Association’s “Food for Thought” series:

“**Immigration on Nantucket: What You Should Know**”

<https://www.youtube.com/watch?v=u17rINVweZs> (Morrison presentation starts at minute 2:10)

2015: City of Waterbury, CT presentations “**Alderman by District Reapportionment Commission**”  
<https://www.waterburyct.org/content/33396/33400/33431/default.aspx>

01/08/2014 meeting: <https://www.youtube.com/watch?v=aj6qE3JECg0&feature=youtu.be>  
(Morrison presentation start at minute 23:10)

01/14/2015 meeting: [https://www.youtube.com/watch?v=98Vp4y11\\_sc](https://www.youtube.com/watch?v=98Vp4y11_sc)  
(Morrison presentation starts at minute 9:10)

2014: “**Investing in Nantucket’s Future**” <http://vp.telyue.com/preview?id=T02542&video=223735>  
(Morrison presentation starts at minute 1:30)

2013: “**Growing Old: How Aging Populations Will Transform Our Lives and Times**”

[http://www.youtube.com/watch?v=kJvS\\_hhgLDk&feature=c4-overview-vl&list=PLjgJVmnztYsTqYVn\\_ijBhCGxA5-7DMtGw](http://www.youtube.com/watch?v=kJvS_hhgLDk&feature=c4-overview-vl&list=PLjgJVmnztYsTqYVn_ijBhCGxA5-7DMtGw) (Morrison presentation starts at minute 1:05)

TOP CITED PUBLICATION (GOOGLE SCHOLAR)

Peter A. Morrison - Google Scholar Citations 5/18/20, 10:24 PM

**Peter A. Morrison**

RAND; Morrison & Associates  
Demography  
Redistricting

	All	Since 2015
Citations	3258	529
h-index	30	11
i10-index	61	12

TITLE	CITED BY	YEAR
<a href="#">Return and other sequences of migration in the United States</a> JS DaVanzo, PA Morrison Demography 18 (1), 85-101	272	1981
<a href="#">Chronic movers and the future redistribution of population: a longitudinal analysis</a> PA Morrison Demography 8 (2), 171-184	196	1971
<a href="#">Duration of residence and prospective migration: the evaluation of a stochastic model</a> PA Morrison Demography 4 (2), 553-561	172	1967
<a href="#">Rural renaissance in America? The revival of population growth in remote areas.</a> PA Morrison, JP Wheeler Population Reference Bureau, Inc., 1337 Connecticut Avenue, NW, Washington ...	164	1976
<a href="#">The Los Angeles riots: Lessons for the urban future</a> M Baldassare, DO Sears, EW Butler, PA Morrison Routledge	161	2019
<a href="#">Teenagers willing to consider single parenthood: Who is at greatest risk?</a> AF Abrahamse, PA Morrison, LJ Waite Family Planning Perspectives, 13-18	156	1988
<a href="#">A new method for estimating race/ethnicity and associated disparities where administrative records lack self-reported race/ethnicity</a> MN Elliott, A Fremont, PA Morrison, P Pantoja, N Lurie Health services research 43 (5p1), 1722-1736	131	2008
<a href="#">Using the Census Bureau's surname list to improve estimates of race/ethnicity and associated disparities</a> MN Elliott, PA Morrison, A Fremont, DF McCaffrey, P Pantoja, N Lurie Health Services and Outcomes Research Methodology 9 (2), 69	118	2009
<a href="#">The changing demographic and economic structure of nonmetropolitan areas in the United States</a> KF McCarthy, PA Morrison	98	1977

## BOOKS

Morrison, P. A. and T. M. Bryan, *Redistricting: A Manual for Analysts, Practitioners, and Citizens* (Springer, 2019).  
Preview at: <https://www.amazon.com/Redistricting-Manual-Analysts-Practitioners-Citizens/dp/3030158268>

Morrison, P. A., ed. *A Taste of the Country: A Collection of Calvin Beale's Writings* (Penn State Univ. Press, 1990).  
Preview at: <https://www.amazon.com/Taste-Country-Collection-Writings-Studies/dp/0271006315>

Morrison, P. A., co-ed. *Demographics: A Casebook for Business and Government* (Westview Press, 1994). Access at: [https://www.rand.org/pubs/monograph\\_reports/MR904.html](https://www.rand.org/pubs/monograph_reports/MR904.html)

Morrison, P. A., ed. *Population Movements: Their Forms and Functions in Urbanization and Development* (IUSSP, Ordina Editions, Liege, Belgium, 1983).

Morrison, P. A. *Demographic Information for Cities: A Manual for Estimating and Projecting Local Population Characteristics* (Santa Monica, CA: RAND Corporation, R-618, 1971).  
Access at: <https://www.rand.org/pubs/reports/R0618.html>

## SELECTED PUBLICATIONS/PAPERS/POLICY BRIEFS/OP-EDs/ ORAL HISTORIES

Three of my Nantucket oral histories are accessible as podcasts at:  
<https://podcatr.com/narrative/documentaries/history/american-history/all-ears-nantucket/>  
Select: "From Chaltenango"; "Mrs. Whyte"; and "Two New Yorks: Episode 1"

Most of my publications (or abstracts) are accessible at these sites:

[https://www.researchgate.net/profile/Peter\\_Morrison2/publications?sorting=newest&page=2](https://www.researchgate.net/profile/Peter_Morrison2/publications?sorting=newest&page=2)  
[www.rand.org/pubs/authors/m/morrison\\_peter\\_a.html](http://www.rand.org/pubs/authors/m/morrison_peter_a.html)

"Chap. 6. An Early-Warning Covid-19 Alert and Response Protocol for Seasonal Resort Communities," David Swanson and Peter Morrison; and "Chap.16. America's Post-Pandemic Future," (coauthor). Forthcoming in: D. Swanson & R. Verdugo, eds., *Socio-Demographic Perspectives on the COVID-19 Pandemic* (Information Age Publishing, 2023).

"America's Post-Pandemic Future: A Demographic Perspective," in *PAA Affairs*, 2022 (coauthor).

Access at: <https://www.populationassociation.org/blogs/david-swanson/2022/01/04/americas-post-pandemic-future-a-demographic-perspe>

"The contribution of first-name information to the accuracy of racial-and-ethnic imputations varies by sex and race-and-ethnicity among Medicare beneficiaries," (coauthor). *Medical Care* 60(8):556-562, August 2022.

Access at: [www.lww-medicalcare.com](http://www.lww-medicalcare.com)

"America's Post-Pandemic Future: A Demographic Perspective," *PAA Affairs* (coauthor), 2022.

Access at: <https://www.populationassociation.org/browse/blogs?CommunityKey=a7bf5d77-d09b-4907-9e17-468af4bdf4a6>

"Sanctuary Cities Get a Census Bonus," op-ed in *The Wall Street Journal*, July 16, 2019.

[https://www.wsj.com/articles/sanctuary-cities-get-a-census-bonus-11563318817?fbclid=IwAR3Ygf2TAeqLjsUc\\_hbu3GS1775Zd9iGG3dIgWcMF1DQPv95jsTFBptdHOY](https://www.wsj.com/articles/sanctuary-cities-get-a-census-bonus-11563318817?fbclid=IwAR3Ygf2TAeqLjsUc_hbu3GS1775Zd9iGG3dIgWcMF1DQPv95jsTFBptdHOY)

"Small-Area and Business Demography" (coauthor) Chapter 31 in Dudley L. Poston, Jr. (editor). *Handbook of Population*. 2<sup>nd</sup> edition. Cham, Switzerland: Springer Nature.

"A border wall won't stop people from coming here illegally," op-ed in *The Bryan-College Station (TX) Eagle*, March 19, 2019 (co-author). Access at:

[https://www.theeagle.com/opinion/columnists/a-border-wall-won-t-stop-people-from-coming-here/article\\_5b5e7216-4551-582c-9e82-0f5adf37896d.html](https://www.theeagle.com/opinion/columnists/a-border-wall-won-t-stop-people-from-coming-here/article_5b5e7216-4551-582c-9e82-0f5adf37896d.html)

"Demographic Approaches to Unveiling a Partisan Gerrymander," presented at the 2019 Population and Public Policy Conference, Albuquerque, NM.

"Estimating Nantucket's Effective Population," *Population Research & Policy Review*, 2020 (coauthor). Access at: <https://link.springer.com/article/10.1007%2Fs11113-019-09565-8>

"Small-Area and Business Demography," chapter in D. Poston, ed., *Handbook of Population* (Springer, 2019), coauthored with Stan Smith & Thomas Bryan.

Access at: [https://link.springer.com/chapter/10.1007/978-3-030-10910-3\\_32](https://link.springer.com/chapter/10.1007/978-3-030-10910-3_32)

"Distinguishing 'False Positives' Among Majority-Minority Election Districts in Statewide Congressional Redistricting," 2017 Southern Demographic Association meetings (coauthor).

"A Comparison of Methods for Classifying and Modeling Respondents Who Endorse Multiple Racial/Ethnic Categories: A Healthcare Experience Application," (coauthor) *Medical Care* 57(6) 2019. Access at:

<https://www.ncbi.nlm.nih.gov/pubmed/30439794>

"Can Puerto Ricans Spark a Latino Political Backlash?" op-ed in *San Antonio Express-News*, February 13, 2018 (coauthored with Charles S. Bullock, III).

Access at: [https://www.researchgate.net/publication/323200663\\_Can\\_Puerto\\_Ricans\\_spark\\_a\\_Latino\\_political\\_backlash](https://www.researchgate.net/publication/323200663_Can_Puerto_Ricans_spark_a_Latino_political_backlash)

"Focus on Teaching: The Legend of the Calamity-Induced Baby Boom," PAA Affairs, Spring 2017.

Access at: [https://www.researchgate.net/publication/315683457\\_Focus\\_on\\_Teaching\\_The\\_Legend\\_of\\_the\\_Calamity-Induced\\_Baby\\_Boom](https://www.researchgate.net/publication/315683457_Focus_on_Teaching_The_Legend_of_the_Calamity-Induced_Baby_Boom)

"The Demography of Trump's Wall," *N-IUSSP*, April 3, 2017 (coauthor).

Access at: [www.niussp.org/article/demography-trumps-walle-mur-de-trump-et-ses-consequences-demographiques/](http://www.niussp.org/article/demography-trumps-walle-mur-de-trump-et-ses-consequences-demographiques/)  
Russian translation: <https://demreview.hse.ru/article/download/8667/9249/>

"Three Myths of U.S. Immigration," op-ed in *San Antonio Express-News*, March 4, 2017 (coauthored with Dudley L. Poston, Jr.).

Access at: [www.mysanantonio.com/opinion/commentary/article/Three-myths-of-U-S-immigration-10975928.php](http://www.mysanantonio.com/opinion/commentary/article/Three-myths-of-U-S-immigration-10975928.php)

"From Legal Theory to Practical Application: A How-To for Performing Vote Dilution Analysis," *Social Science Quarterly* 99(2): 536-552 (2018), coauthor.

Access at: [https://www.researchgate.net/publication/315631377\\_From\\_Legal\\_Theory\\_to\\_Practical\\_Application\\_A\\_How-To\\_for\\_Performing\\_Vote\\_Dilution\\_Analyses\\_From\\_Legal\\_Theory\\_to\\_Practical\\_Application](https://www.researchgate.net/publication/315631377_From_Legal_Theory_to_Practical_Application_A_How-To_for_Performing_Vote_Dilution_Analyses_From_Legal_Theory_to_Practical_Application)

"Foreward" to D. A. Swanson, ed., *The Frontiers of Applied Demography* (2017)

Assess at: [https://www.researchgate.net/publication/311486631\\_Foreward\\_to\\_The\\_Frontiers\\_of\\_Applied\\_Demography\\_2017](https://www.researchgate.net/publication/311486631_Foreward_to_The_Frontiers_of_Applied_Demography_2017)

"Projecting Future Demand for Assisted Living in the US: A Case Study," chapter 6 in D. A. Swanson, ed., *The Frontiers Applied Demography* (2017).

Access at:

[https://www.researchgate.net/publication/311800586\\_Projecting\\_Future\\_Demand\\_for\\_Assisted\\_Living\\_chap\\_6\\_in\\_THE\\_FRONTIERS\\_OF\\_APPLIED\\_DEMOGRAPHY](https://www.researchgate.net/publication/311800586_Projecting_Future_Demand_for_Assisted_Living_chap_6_in_THE_FRONTIERS_OF_APPLIED_DEMOGRAPHY)

"Health Care Access: The Hollow Promise," op-ed in *Starkville Daily News*, 10/18/2016 (coauthored with Ron Cossman).

Access at: [https://www.researchgate.net/publication/309458235\\_Health\\_Care\\_Access\\_The\\_Hollow\\_Promise](https://www.researchgate.net/publication/309458235_Health_Care_Access_The_Hollow_Promise)

"Our Island Home's Future: A Demographic Perspective," white paper for Town of Nantucket, 12/08/2015. Access at: <https://records.nantucket-ma.gov/WebLink/DocView.aspx?id=122533&dbid=0&repo=TownofNantucket&cr=1>

"We have the data to make voting fair. Let's use it." op-ed in *The Washington Post*, 10/22/2015

Access at: <http://www.washingtonpost.com/news/in-theory/wp/2015/10/22/we-have-the-data-to-make-voting-fair-lets-use-it/>

Supreme Court of the United States. “Brief of Demographers Peter A. Morrison, Thomas M. Bryan, William A. V. Clark, Jacob S. Siegel, David A. Swanson, and The Pacific Research Institute as *Amici Curiae* in Support of Appellants,” in Evenwel et al. v. Abbott et al.

*Access at:* <http://www.scotusblog.com/wp-content/uploads/2015/08/Demographers-Amicus.pdf>

“Exploring the Blizzard Babies Phenomenon,” op-ed in *Providence Journal*, March 3, 2015.

*Access at:* [www.providencejournal.com/article/20150303/OPTION/150309836](http://www.providencejournal.com/article/20150303/OPTION/150309836)

“A Method to Forecast Hispanic Voting Strength at Local Scales,” presented at Applied Demography Conference, San Antonio, Texas, January 8-10, 2014.

“Quantifying the Effect of Age Structure on Voter Registration,” *Social Science Quarterly* (2014).

*Access at:* <http://onlinelibrary.wiley.com/doi/10.1111/ssqu.12059/abstract>

“Forecasting Hispanics’ Ripening Voting Strength at Local Scales,” presented at 2012 Annual Meeting of Southern Demographic Association, Williamsburg, VA

“Gauging Hispanics’ Effective Voting Strength in Proposed Redistricting Plans: Lessons Learned Using ACS Data,” (coauthored with T. Bryan), for National Academy of Sciences Workshop on the Benefits (and Burdens) of the American Community Survey, Case Studies/Agenda Book, chap. 5 (2012). *Access at:*

[http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse\\_073124.pdf](http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_073124.pdf)

“Chinese Workers Could Replace Mexican Immigrants,” op-ed in *Houston Chronicle*, Aug. 12, 2011 (coauthored with Dudley Poston, Jr.).

*Access at:* [www.chron.com/opinion/outlook/article/Chinese-workers-could-replace-Mexican-immigrants-2077827.php](http://www.chron.com/opinion/outlook/article/Chinese-workers-could-replace-Mexican-immigrants-2077827.php)

“Integrating Census Data to Support a Motion for Change of Venue,” *Population Research & Policy Review* (coauthored with Dean Judson), 2011. *Access at:* <http://paa2011.princeton.edu/papers/111043>

“An Evaluation of Additive and Hierarchical Classifications of Race/Ethnicity as Measured on Census 2000,” coauthor (under review).

“Using the Census Bureau’s Surname List to Improve Estimates of Race/Ethnicity and Associated Disparities,” *Health Services and Outcomes Research Methodology* 9(2), pp.69-83 (coauthor). *Access at:* [www.rand.org/pubs/external\\_publications/EP20090611.html](http://www.rand.org/pubs/external_publications/EP20090611.html)

“Teaching Business Demography Using Case Studies,” presented at the International Union for the Scientific Study of Population Seminar on Applications of Demography in Business, Sydney Australia, October 2007 (coauthor). Appears in *Population Research & Policy Review*.

*Access at:* <http://link.springer.com/article/10.1007/s11113-009-9155-4>

“Targeting Spatial Clusters of Elderly Consumers in the USA,” presented at the International Union for the Scientific Study of Population Seminar on Applications of Demography in Business, Sydney Australia, October 2007 (coauthored with Thomas Bryan). Appears in *Population Research & Policy Review*. *Access at:* <http://link.springer.com/article/10.1007/s11113-009-9149-2>

“Assessing the Need for a New Medical School: A Case Study in Applied Demography,” *Population Research & Policy Review* 2010 (coauthor). *Access at:*

[https://www.researchgate.net/publication/226767472\\_Assessing\\_the\\_Need\\_for\\_a\\_New\\_Medical\\_School\\_A\\_Case\\_Stud...](https://www.researchgate.net/publication/226767472_Assessing_the_Need_for_a_New_Medical_School_A_Case_Stud...)

“A New Method for Estimating Race/Ethnicity and Associated Disparities Where Administrative Records Lack Self-Reported Race/Ethnicity,” coauthor, *Health Services Research Journal* 43(5), Oct. 2008. *Access at:* <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2653886/>

“Forecasting the Supply of and Demand for Physicians in the Inland Southern California Area” (coauthor), RAND Technical Report TR524, 2007.

“Evaluating a Claim of Discriminatory Annexation Using Demographic Analysis: An Instructional Case,” at 2005 annual Southern Demographic Association meetings.

“Evaluating Evidence of Discrimination in Multi-Ethnic Housing Markets,” *Population Research & Policy Review*, 2008 (coauthored with William A. V. Clark).

*Access at:* <https://link.springer.com/article/10.1007/s11113-007-9066-1>

“Methods for Gauging the Target Populations that Community Colleges Serve,” *Population Research & Policy Review* 26(1), 2007 (coauthored with L. Santibañez, G. Gonzalez, S. J. Carroll).

“Lingering Effects of Discrimination: Tracing Persistence Over Time in Local Populations,” *Population Research & Policy Review*, 2006. *Access at:* <https://link.springer.com/article/10.1007/s11113-006-0005-3>

“Understanding the Antecedents of Underage Drinking,” at 2005 annual Southern Demographic Association meetings, Durham, NC (coauthored with Allan Abrahamse).

“China: Bachelor Bomb,” op-ed appearing in *New York Times*, International Herald Tribune 09/14/2005 (coauthored with Dudley Poston)

*Access at:* <https://www.nytimes.com/2005/09/14/opinion/china-bachelor-bomb.html>

“Small-Area and Business Demography,” chapter in D. Poston and M. Micklin, *Handbook of Population*, 2005 (coauthored with Stan Smith).

“Future Demographic Challenges to California School Districts,” presented at 2005 annual Population Association of America meetings, session on School Demography.

“Demographic Overview of California’s K-12 Public School Student Population,” chap. 2 in S. J. Carroll et al., *California’s K-12 Public Schools: How Are They Doing?* RAND MG-186, 2005.

“Counting on Demography: Fostering Applications of the Social Sciences,” invited plenary address at the 2005 Southwestern Social Science Association meetings, New Orleans

“How Migration Flows Shape the Elderly Population of Metropolitan Pittsburgh,” at 2004 annual Southern Demographic Association meetings, Hilton Head, SC (coauthored with Chris Briem)

“The Bright Lights in Pittsburgh’s Future,” op ed appearing in *Pittsburgh Post-Gazette*, Sept. 19, 2004 (coauthored with Barry Balmat)

“New Approaches to Spotting Enclaves of the Elderly Who Have Aged in Place,” presented at 2004 Population Association of America meetings (coauthored with Tom Bryan).

“Developing an Arab-American Surname List: Potential Demographic and Health Research Applications,” at 2003 Southern Demographic Association meetings (coau. with B. Kestenbaum, D. Lauderdale, A. Abrahamse, S. El-Badry).

“A Demographic Overview of Metropolitan Pittsburgh,” RAND Issue Paper IP-256 (2003).

“Confronting a Race-Based School Admissions Policy,” *Chance* 16(1), 2003.

“An Overview of Business Demography in the U.S.A.,” invited paper for the Australian Population Association’s 11<sup>th</sup> Biennial Conference, Sydney, October 2002.

“Internal Migration and Short-Distance Mobility,” Chapter 19 in D. Swanson, et al., *The Methods and Materials of Demography*, rev. ed., 2003 (coau. with T.M. Bryan and D.A. Swanson).

“Business Demography,” in P. Demeny and J. McNicholl, eds., *Encyclopedia of Population*, 2003 (coauthored with Stan Smith).

"A National Legacy of Migration," in Carla Blank, *Rediscovering America* (2003).

Review of J. S. Siegel, *Applied Demography: Applications to Business, Government, Law, and Public Policy in Population and Development Review* 28(1), 2002.

"A Demographic Perspective on Our Nation's Future," RAND Documented Briefing, 2001.

"Using First Names to Estimate Racial Proportions in Populations," (coauthored with D.I. Word & C.D. Coleman), presented at the 2001 Population Association of America meetings.

"At-Large Elections Under Legal Challenge: Where Demographic Analysis Fits In," presented at the 2000 Population Association of America meetings.

"Meeting Local Information Needs: A Case Study in Team Applied Demography," *Applied Demography Newsletter*, Population Association of America, Spring 2002 (coauthored).

"Gauging Future Prospects for a Neighborhood Vehicle: Where Demographic Analysis Fits In," at 1999 Southern Demographic Association meetings, San Antonio.

"Forecasting Enrollments for Immigrant Entry-Port School Districts," *Demography*, Nov. 2000.

"Charting Alternatives to a Segregated School Admissions Policy: Where Demographic Analysis Fits In," at 1998 Population Association of America meetings, Chicago (abridged version appears in *Chance*).

"Unveiling the Demographic 'Action' in Class Actions," *Population Research and Policy Review*, 1999. Access at: <https://link.springer.com/article/10.1023/A%3A1006381629603>

"Family Policies and Demographic Realities," chapter in J.W. Hughes and J.J. Seneca, eds., *America's Demographic Tapestry: Baseline for the New Millennium*, Rutgers Univ. Press, 1999.

"Applying Demographic Analysis in Affirmative Action Disputes: An Instructional Case," *Population Research and Policy Review*, 1998.

Access at: <https://link.springer.com/article/10.1023/A%3A1006017911057>

"Demographic Influences on Latinos' Political Empowerment: Comparative Local Illustrations," *Population Research and Policy Review*, 1998.

Access at: <https://link.springer.com/article/10.1023/A%3A1005914503677>

"Demographic Change and School District Response: Assessing Alleged Discriminatory Effects of Boundary Changes," under review (with W.A.V. Clark).

"Forecasting Enrollments During Court-Ordered Desegregation," *Population Research and Policy Review*, 1996.

"Applying Demographic Analysis to Store Site Selection," *Population Research and Policy Review*, 1996 (with A. F. Abrahamse).

"Tracking Growth of Emerging Consumer Markets Worldwide: Where Demographic Analysis Fits In," presented at Sixth International Conference on Applied and Business Demography, Bowling Green, OH (coauthored).

"Tying Knots in the American Tapestry," Op-ed article, *Los Angeles Times*, Sept. 18, 1995.

Access at: [http://articles.latimes.com/1995-09-18/local/me-47167\\_1\\_ethnic-identity](http://articles.latimes.com/1995-09-18/local/me-47167_1_ethnic-identity)

"Broadening Client Perspectives on Business Concerns," *Applied Demography*, Summer 1995.

"Demographic Foundations of Political Empowerment in Multi-Minority Cities," *Demography*, May, 1995 (with W.A.V. Clark).

"Demographic Perspectives on the Voting Rights Act," RAND P-7905, 1995 (briefing cohosted by U. S. House Subcommittee on Census and The Population Resource Center, Oct.19,1994).

*Demographics: A Casebook for Business and Government*, Westview Press, 1994 (coeditor).

"Empowered or Disadvantaged? Applications of Demographic Analysis to Political Redistricting," chapter in *Demographics* (cited above).

"A Riot of Color: The Demographic Setting of Civil Disturbance in Los Angeles," RAND P-7819 (with Ira S. Lowry). Condensed version appears in Mark Baldassare (ed.), *The Los Angeles Riots: Lessons for the Urban Future*, Westview, 1994. Access at: [https://www.researchgate.net/publication/311800927\\_A\\_Riot\\_of\\_Color\\_The\\_Demographic\\_Setting](https://www.researchgate.net/publication/311800927_A_Riot_of_Color_The_Demographic_Setting)

"Surname Analysis for Estimating Local Concentration of Hispanics and Asians," *Population Research and Policy Review*, 1994 (with A. F. Abrahamse).

Access at: [https://www.researchgate.net/publication/270279296\\_Surname\\_Analysis\\_for\\_Estimating\\_Local\\_Concentrations](https://www.researchgate.net/publication/270279296_Surname_Analysis_for_Estimating_Local_Concentrations)

"The Demographic Context of Army Family Support Policy," chapter in M.J. Eitelberg and S.L. Mehay (eds.), *Marching Toward the 21st Century* (Greenwood Press, 1994).

"Strategic Sleuths," *Forecast Magazine*, Nov/Dec 1993.

"Congress and the Year 2000: Peering into the Demographic Future," *Business Horizons*, Nov/Dec 1993 (condensation of RAND N-3279 cited below).

"A California That Can Work: People, Productivity, and Energy," RAND P-7828 (invited testimony before the California Energy Commission, June 1993).

"Goodbye Past, Hello Future: California's Demographic Shift," Op-ed article, *Los Angeles Times*, September 13, 1993.

"More than Meets the Eye," *Chance*, May 1993.

"Employment Discrimination: How Demographic Analysis Fits In," presented at Fourth International Conf. on Applied Demography, Bowling Green, Ohio, September 1992.

"Is 'Aging in Place' a Blueprint for the Future?" Association of American Geographers Meeting, San Diego, RAND, P-7794, 1992.

"Gauging Hispanic Voting Strength: Pitfalls and Paradoxes," *Population Research and Policy Review*, 1992 (with W.A.V. Clark).

"Local Redistricting: The Demographic Context of Local Boundary Drawing," *National Civic Review*, Winter/Spring 1992 (with W.A.V. Clark).

"Mirroring the Mosaic: Redistricting in a Context of Cultural Pluralism," RAND, P-7789, 1992.

"Testimony before House Subcommittee on Census and Population," RAND, P-7784, 1992.

"Healthier Childhoods and Family Responsibility: Two Issue Papers," RAND, P-7788, 1992.

"How Demographic Analysis Supports Redistricting," for Mandatory Continuing Legal Education course sponsored by County Counsels Association of California, January 1992.

"California's Future: More to Come," Op-ed article, *The Los Angeles Times*, Dec. 3, 1991.  
Access at: [http://articles.latimes.com/1991-12-03/local/me-416\\_1\\_future-growth](http://articles.latimes.com/1991-12-03/local/me-416_1_future-growth)

*Soldiers' Families: Tracking Their Well-Being During Peacetime and War*, RAND, N-3405-A, 1992 (coauthor).

"California's Demographic Outlook: Implications for Growth Management," RAND, P-7738, 1991.

"The Changing Demographic Context of Postsecondary Education," RAND, P-7737, 1991.

"The Demographer's Role in the Local Boundary-Drawing Process," RAND, P-7711, 1991 (coauthor).

"Looking In From Outside: Enhancing Demographic Perspectives on Business Concerns," given at 1991 Population Association of America meetings.

"Demographic Paradoxes in the Los Angeles Voting Rights Case," *Evaluation Review*, 1991 (with W.A.V. Clark).

"Future Images—Childhood, The Workplace, Our Communities," RAND P-7656, 1990.

"The Changing Demographic Context of Municipal Governance," RAND P-7654, 1990.

"Pitfalls in Estimating Eligible Voters Among Hispanics," coauthored, given at 1990 Population Association of America meetings.

"Demographic Factors Reshaping Ties to Family and Place," *Research on Aging*, Dec. 1990.

Access at: <https://journals.sagepub.com/doi/pdf/10.1177/0164027590124002>

"Applied Demography: Its Growing Scope and Future Direction," *The Futurist*, 24(2): 9–15. March/April 1990.

"A Demographic Perspective on Future Issues," *Congressional Research Service CRS Review*, Jan/Feb 1990.

"Leaving School Early: 'Stopping Out' and Dropping Out Among American Youth," given at the 1989 American Sociological Association meetings (with Jane Mauldon).

*Families in the Army: Looking Ahead*, RAND, R-3691-A, 1989 (coauthor).

"Quantifying Legal Standards in Section 2 Voting Rights Cases," paper given at Population Association of America.

*Congress and the Year 2000: A Demographic Perspective on Future Issues*, RAND, N-3279, March 1991.

"What Tomorrow's Demographers Will Be Called Upon to Do," RAND P-7469, 1988.

*Beyond Stereotypes: Who Becomes a Single Teenage Mother?*, RAND R-3489, 1988 (coau.).

"Government Must Help Families With Long-term Care for Elderly," op-ed article, *The Atlanta Constitution*, April 19, 1988.

"Teens Willing to Consider Single Parenthood: Who is at Greatest Risk?" *Family Planning Perspectives*, Jan/Feb, 1988 (coauthor).

*The Current Demographic Context of Federal Social Programs*, RAND, N-2785, 1988.

"Demographic Factors Reshaping the U.S. Market for New Housing," RAND, P-7467, 1988.

"Applied Demography: Its Current Scope and Future Direction in the United States," RAND Paper, 1988.

*Public Libraries Face California's Ethnic and Racial Diversity*, RAND, R-3656, 1988 (coauthor, Chapter 4).

"Changing Demographics: What to Watch For," *Business Economics*, 1987.

"Continuity and Change Across the Population Sciences," RAND, P-7281, 1986.

"Pro-Family Laws May Miss the Mark," op-ed article in *The Wall Street Journal*, Dec. 5, 1986.

*Changing Family Structure: Who Cares for America's Dependents?* RAND, N-2518, 1986.

"Accounting for the Educational Shortfalls of Mothers," *Journal of Marriage and the Family*, 1986 (coauthored).

"The Prism of Migration," *Social Science Quarterly*, 1986 (with Julie DaVanzo).

Access

at:

[https://www.researchgate.net/publication/284957921\\_The\\_prism\\_of\\_migration\\_Dissimilarities\\_between\\_return\\_and\\_onward\\_movers](https://www.researchgate.net/publication/284957921_The_prism_of_migration_Dissimilarities_between_return_and_onward_movers)

*How Demographic Shifts Will Affect the IRS and Its Mission*, RAND, P-7170, 1985.

Access at: <http://www.popline.org/node/421417>

"Characteristics of Migrants from Metropolitan to Nonmetropolitan Areas in the U.S.A.," *Espace Populations Societes*, 1985 (with Kevin McCarthy).

*Demographics and Business Decisionmaking: Prospects and Possibilities for the 1980s*, RAND, P-7017, 1984. Appears in *Marketing Review*, Fall 1985.

"Tracking People," *Group Practice Journal*, July/August 1984.

*Demographic Forces Reshaping Small Communities in the 1980s*, RAND, N-1887, 1982 (coauthor). Appears in *Southwestern Review of Management and Economics*, 1984.

*Population Movements: Their Forms and Functions in Urbanization and Development* (Ordina: International Union for the Scientific Study of Population, 1983). Editor and author of Chap. 1.

*Current Demographic Trends and Federal Policy: An Overview*, RAND, N-2030, 1983.

"Is Population Deconcentration Lengthening Commuting Distances?" *Population Research and Policy Review*, 1983 (with Kevin McCarthy).

*Migration Sequences: Who Moves Back and Who Moves On?*, RAND, R-2548-NICHD, 1982 (with Julie DaVanzo).

*Demographic Challenges in America's Future*, RAND, R-2911, 1982 (with William P. Butz).

"Different Approaches to Monitoring Local Demographic Change," chapter in E. S. Lee and H. F. Goldsmith, eds., *Population Estimates: Methods for Small Area Analysis*, Sage, 1982.

"The Energy Situation and the World of Californians," in *Regional Perspectives on Energy Issues*, (The Conference Board, July 1982).

*Demographic Certainties and Uncertainties in the Future of Social Security*, RAND, N-1742-NICHD, 1981 (invited Senate testimony). Appears in *Challenge: The Magazine of Economic Affairs*, Jan.-Feb., 1982.

"There Are Just Too Many Uncertainties," op-ed article, *The Sacramento Bee*, 9/20/81.

*Teenage Parenthood: A Review of Risks and Consequences*, RAND N-1714, 1981 (coau.).

*Teenage Parents: Their Ambitions and Attainments*, RAND, R-2771, 1981 (coau.).

"Return and Other Sequences of Migration in the U.S.," *Demography*, 18 (1): 85-101 1981 (coau.).

"How Demographers Can Help Legislators," *Policy Analysis*, 1980.

*Accommodating the Demography of the 1980s*, Midcontinent Perspective Series, Midwest Research Institute, December 1980.

*City Data: A Catalog of Data Sources for Small Cities*, RAND, R-2612, 1980 (coauthored).

Access at: <https://www.rand.org/content/dam/rand/pubs/reports/2008/R2612.pdf>

*Effects of Postsecondary Experiences on Aspirations, Attitudes, and Self-Conceptions*, RAND R-2616, 1980 (coauthor).

*Consequences of Parenthood in Late Adolescence: Findings from the National Longitudinal Study of High School Seniors*, RAND, N-1343-NICHD, 1979 (coauthored).

"Demographic Trends Impinging on Energy Use," chapter in Charles T. Unseld et al., *Sociopolitical Effects of Energy Use and Policy*, National Academy of Sciences, Washington, D.C., 1979.

*The Future Demographic Context of the Health Care Delivery System*, RAND, N-1347, 1979.

"The Transition to Zero Population Growth in the Midwest," chapter in C. C. Roseman (ed.), *Population Redistribution in the Midwest*.

"Current Demographic Change in Regions of the United States," chapter in V. L. Arnold (ed.), *Alternatives to Confrontation: A National Policy Toward Regional Change*; condensed version appears in *American Demographics*, May 1979.

*Overview of Demographic Trends Shaping the Nation's Future*, RAND, P-6128, 1978 (testimony before Joint Economic Committee of Congress).

Access at: <http://www.popline.org/node/440950>

*The Current Demographic Context of National Growth and Development*, RAND, P-5514, 1975 (Congressional testimony); published in condensed form in L. S. Bourne and J. W. Simmons (eds.), *Systems of Cities*, Oxford Univ. Press, 1978, Chap. 6.6.

"Emerging Public Concerns Over U.S. Population Movements in an Era of Slowing Growth," in T. Espenshade and W. Serow (eds.), *The Economic Consequences of Slowing Population Growth*, 1978.

"The Image of 'Elsewhere' in the American Tradition of Migration" (coauthored), in W. H. McNeill and R. S. Adams (eds.), *Human Migration: Patterns, Policies, Implications*, Indiana University Press, Bloomington, Indiana, 1978.

"New York State's Transition to Stability: The Demographic Outlook," in Ben Chinitz (ed.), *The Declining of New York in the 1970s: A Demographic and Economic Analysis*, Praeger, 1978.

*Toward A Policy Planner's View of the Urban Settlement System*, RAND, P-5357, 1975; condensed version appears in L. S. Bourne and J. W. Simmons (eds.), *Systems of Cities*, Oxford University Press, 1978, Chap. 7.3.

"The Changing Demographic and Economic Structure of Nonmetropolitan Areas in the U.S.," *International Regional Science Review*, 2(2), 1977 (with Kevin McCarthy).

"Forecasting Population of Small Areas: An Overview," in *Population Forecasting for Small Areas*, Oak Ridge Associated Universities, Oak Ridge, Tennessee, 1977.

"Demographic Trends That Will Shape Future Housing Demand," *Policy Sciences*, 1977.

"The Functions and Dynamics of the Migration Process" (Chap. 4); and "Urban Growth and Decline in the U.S.: A Study of Migration's Effects in Two Cities" (Chap. 14), in A. Brown and E. Neuberger (eds.), *Internal Migration: A Comparative Perspective*, Academic Press, 1977.

*San Jose and St. Louis in the 1960s: A Case Study of Changing Urban Populations*, RAND, R-1313-NSF, 1973; adaptation appears in S. Goldstein and D. Sly (eds.), *Patterns of Urbanization: Comparative Country Studies*, International Union for Scientific Study of Population, Liege, Belgium, 1977.

*Rural Renaissance in America? The Revival of Population Growth in Remote Areas*, Population Reference Bureau, Inc., 1976.

*National Longitudinal Study of High School Seniors: An Agenda for Policy Research*, RAND, R-1964-HEW, 1976 (coauthored).

*The Demographic Context of Educational Policy Planning*, Occasional Paper of the Aspen Institute for Humanistic Studies, 1976.

*Mental Health and Mental Retardation Services in Nevada*. Santa Monica, CA: RAND Corporation, 1976 (coauthor). Access at: <https://www.rand.org/pubs/reports/R1800.html>

"A Method for Monitoring Small-Area Population Changes in Cities," *Review of Public Data Use*, April 1975 (coauthored).

*Recent Research Insights into Local Migration Flows*, RAND, P-5379, 1975 (coauthored). *Population Movements and the Shape of Urban Growth: Implications for Public Policy*, RAND, R-1072-CPG, 1972 (Commission on Population Growth and the American Future, *Research Reports*, Vol. V, 1973); adaptation appears in J. Friedmann and W. Alonso, *Regional Policy: Readings in Theory and Applications*, MIT Press, 1975.

"Urban Growth and Decline: San Jose and St. Louis in the 1960s," *Science*, 1974.

*Review of Federal Programs to Alleviate Rural Deprivation*, RAND, R-1651, 1974 (coauth.).

"Guiding Urban Growth: Policy Issues and Demographic Constraints," RAND P-5212, 1974.

Access at: [https://www.academia.edu/29836028/Guiding\\_urban\\_growth\\_Policy\\_issues\\_and\\_demographic\\_constraints](https://www.academia.edu/29836028/Guiding_urban_growth_Policy_issues_and_demographic_constraints)

"A Demographic Assessment of New Cities and Growth Centers as Population Redistribution Strategies," *Public Policy*, 1973.

*Dimensions of the Population Problem in the United States* RAND, R-864-CPG, 1972 (Comm. on Population Growth and the Amer. Future, *Research Reports*, Vol. V, 1973).

*How Population Movements Shape National Growth*, RAND, P-5007, 1973 (Congressional Seminar on National Growth Policy). *Migration from Distressed Areas: Its Meaning for Regional Policy*, RAND, R-1103, 1973.

"Theoretical Issues in the Design of Population Mobility Models," *Environment and Planning*, 1973.

"The Impact and Significance of the Rural-Urban Migration in the United States," RAND, P-4752, 1972 (testimony before U.S. Senate Subcommittee on Migratory Labor and Public Welfare).

"The Changing U.S. Population and Future Demand for Air Travel," RAND, P-4938, 1972.  
<https://www.rand.org/pubs/papers/P4938.html>

"Chronic Movers and the Future Redistribution of Population," *Demography*, 1971.

"The Role of Migration in California's Growth," in K. Davis and F. Styles (eds.), *California's Twenty Million: Research Contributions to Public Policy*, Institute of International Studies, University of California, Berkeley, 1971.

"Duration of Residence and Prospective Migration," *Demography*, 1967.

## **APPENDIX C**

### **TESTS OF STATISTICAL SIGNIFICANCE**

My conclusions and opinions in this Report rely upon two separate tests of statistical significance, each of which confirms the existence of this apparent reversal in political participation after 2002.<sup>12</sup>

The first test is the K-means cluster analysis test of voter registration rates shown in Table 2 of my Report. This test rules out the null hypothesis here with strict scientific certainty ( $p < 0.001$ ). Accordingly, I conclude with scientific certainty that the 1980-2002 voter registration rates correspond to one cluster and the 2004-2022 voter registration rates correspond to a different cluster. The K-means cluster analysis has the distinctive strength of focusing on the possibility that the time series is no more than a succession of annual voter registration rates with no underlying racial dimension of change over time. For voter registration, an underlying pattern surely exists. Technical details of the K-means cluster analysis are documented in Appendix Figure 1.

Turning next to the voter turnout rates in Table 2 of my Report, I have conducted a difference of proportions test pertaining to statistical significance. For initial clarification, Figure 1 in my report highlights the dominant four-year cyclical pattern associated with the regular cycle of presidential and nonpresidential elections held every four years. This cyclical pattern is apparent in the pronounced saw-tooth visualization of the dominant voter turnout pattern in Figure 1 over the entire 42-year period from 1980 to 2022.

At the bottom of Figure 1, we see (in orange) a visualization of just the *racial difference* in each biennial election (apart from the dominant cyclical component). For example, the “-11.4%” shown at the lower left corner of Fig. 1 represents the difference in the 1980 election between the 59.5% of Blacks who turned out that year and the 70.9% of Whites who turned out. This orange visualization shows “*valleys*” on the left, which denote 10 successive election years when Black voter turnout trailed White voter turnout (1980-2002); and “*hills*” on the right, which denote 9 successive years when Black voter turnout exceeded White voter turnout (2004-2020). The question I pose here is whether the sequence of numerical differences shown at the bottom of Figure 1 (-11.4%, -5.6%, -3.9% . . . +1.5%, +8.1%, +3.1%) document a genuine reversal in the underlying pattern.

Here I rely upon a difference of proportions test (the Fisher’s Exact Test). This test rules out the null hypothesis with strict scientific certainty ( $p < 0.001$ ). Accordingly, I conclude with scientific certainty that this apparent reversal of the racial difference in turnout (from Black turnout trailing that of Whites from 1980-2002 to the reverse thereafter) surely is real. Technical details of the Fisher’s Exact Test are documented in Appendix Figure 2.

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<sup>12</sup> These tests were conducted at my direction by two colleagues, Prof. David Swanson and Dr. Jeff Tayman. As an applied demographer, it is common practice to collaborate with other demographers and statisticians who can advise me on the use, application, and performance of statistical significance tests.

**APPENDIX FIGURE 1: TECHNICAL DETAILS FOR K-MEANS CLUSTER ANALYSIS****K-Means Cluster Analysis Report**

Dataset Untitled

**Minimum Iteration Section**

Iteration No.	No. of Clusters	Percent of Variation	Bar Chart of Percent
1	2	24.58	

**Iteration Section**

Iteration No.	No. of Clusters	Percent of Variation	Bar Chart of Percent
1	2	24.58	
2	2	24.58	
3	2	24.58	

**Cluster Means**

Variables	Cluster1	Cluster2
C3	0.4368	0.6644
Count	10	10

**Cluster Standard Deviations**

Variables	Cluster1	Cluster2
C3	0.05485091	0.07981395
Count	10	10

**F-Ratio Section**

Variables	DF1	DF2	Between Mean Square	Within Mean Square	F-Ratio	Prob Level
C3	1	18	0.2590088	0.004689444	55.23	0.000001

## **APPENDIX FIGURE 2: TECHNICAL DETAILS FOR FISHER'S EXACT TEST**

Fisher's Exact test. Over the 42 years from 1980 to 2022, the voting patterns of White and Blacks are not stable. They have reversed from a higher percentage of White than Black voters turning out between 1980 and 2002 to a higher percentage of Black than White voters turning out since 2002. A difference of proportions test (Fisher's Exact test) indicates with more than 99% certainty that this shift is not due to chance.

<b>Chi-Square Tests</b>					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	16.364 <sup>a</sup>	1	.000	.000	.000
Continuity Correction <sup>b</sup>	12.929	1	.000		
Likelihood Ratio	21.024	1	.000	.000	.000
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	15.545 <sup>c</sup>	1	.000	.000	.000
N of Valid Cases	20				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 4.50.  
 b. Computed only for a 2x2 table  
 c. The standardized statistic is -3.943.